
MONTHLY REPORT
ON
THE PROGRESS OF THERAPEUTICS.

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BY

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Licentiate of the Royal College of Surgeons of Edinburgh; Lecturer on Medical Chemistry in the Ledwich School of Medicine, Dublin; Corresponding Member of the Therapeutical Society of Paris, and of the Pharmaceutical Society of St Petersburg; Honorary Member of the Ontario and Chicago Colleges of Pharmacy, etc.; Librarian to the Royal College of Surgeons in Ireland.

Reprinted from the Edinburgh Medical Journal for July 1877.

ACTION OF THE SALTS OF BERYLLIUM, ALUMINIUM, YTHIUM, AND CERIUM.—In a brief paper in the *Journal of Anatomy and Physiology* for April 1876, Dr James Blake records the result of his experiments relative to the physiological action of the salts of beryllium, aluminium, ythium, and cerium. The substances used in these experiments all agree in the more marked physiological phenomena they give rise to when introduced directly into the blood. Their most striking action is on the systemic and pulmonary capillaries. This is shown as regards the pulmonary capillaries by the sudden fall of the pressure in the arteries that immediately follows their injection into the jugular. When this gives way, and the substance passes on into the left side of the heart and through the arteries to the systemic capillaries, these become contracted, so that, the blood not escaping from the arteries, the pressure rises rapidly, and in a few seconds is increased far above the normal amount. These substances also exert an action on the nervous system, as is shown by the arrest of respiration, and its renewal sometimes after an interval of two and a half minutes. The action on the nervous system is more marked with the salts of cerium and ythium, more particularly in changes in the rhythm of the heart's action. This effect on the heart, Dr Blake believes, can be carried so far as to arrest its pulsations even before the substances are applied to its parietes; at least, he has seen the action of the heart arrested within two or three seconds when rather large doses of cerium and ythium salts had been injected into the arteries. He thinks the muscular movements that continue so long after death are connected with their action on nerve-tissue. These substances are evidently not heart-poisons, as they are stated to be by Rabuteau, otherwise the heart would not go on contracting under a pressure of 150 cm. to 200 cm., and continue beating long after the respiration is arrested. If they exert any influence on the irritability of the heart, it is to increase it particularly in the

muscular fibres of the left auricle, which has been frequently found contracting when every other part of the organ was still. As regards the connexion between the atomic weights of the substances and the intensity of their physiological action, a series of experiments with the salts of beryllium and aluminium, conducted expressly to determine this point, shows that, at least as regards these substances, the connexion is closer than Dr Blake had supposed.

NITRATE OF ALUMINA IN THE TREATMENT OF PRURITUS VULVÆ.—Dr H. T. Gill obtains more favourable results in the treatment of pruritus vulvæ with nitrate of alumina than with any other remedy. He uses as a vaginal injection or external wash a solution of from four to six grains of the salt in an ounce of soft water. It may be used once, or, if necessary, twice daily.—*St Louis Med. and Surg. Journal*, quoted in *Lond. Med. Record*, 15th Feb. 1876.

ACTION OF THE SILVER SALTS ON THE MUSCULAR AND NERVOUS SYSTEMS.—In a series of experiments on the action of silver on the muscular and nervous systems, Curci used a combination of one part of chloride of silver, three of hyposulphite of soda, and thirty of distilled water. Administered thus, silver does not irritate the skin or mucous membranes. Injected subcutaneously, it produces slight inflammation and oedematous swelling, but is easily absorbed, and does not coagulate the blood. M. Curci concludes, from his experiments, that silver acts on the sensory nerves, and through them on the posterior columns of the cord. It first stimulates them and increases sensibility to pain, raises reflex excitability, and extends its action to the motor portion of the cord, producing tetanus and increased muscular tonus. It increases muscular irritability, and paralyzes secondarily the sensory nerve-centres, especially the respiratory centre. At length it annihilates reflex excitability, respiration and circulation cease, and the heart remains in a state of diastole. M. Curci thinks that these results show the inefficacy of silver in the diseases for which it has been hitherto in repute—myelitis, paralysis agitans, and locomotor ataxy. Where there are softening or induration, proliferation of connective tissue, and destruction of nerve-elements, and where the muscular tonus is weakened, no good action can be expected from a medicine which itself produces these conditions. Silver may be used beneficially in cases of epilepsy which depend on excessive irritation of the spinal cord, but it exerts no effect in those due to anatomical lesions. In hysteria it is useless, but is beneficial in chorea. Its administration in nervous asthma may be attended with excellent results; and as it reduces the irritability of the respiratory centre, it would most probably be especially useful in cases attended with spasm of the inspiratory and bronchial muscles.—*Giornal Veneto di Scienze Mediche*, 1876.

ON THE MEDICINAL ADMINISTRATION OF ARSENIC.—The following are the principles laid down by Dr Duncan Bulkley as regards the therapeutic use of arsenic:—

1. Arsenic, when administered in medicinal doses, has quite another action from that manifested by poisonous doses; the average dose of the former is 1-24th of a grain, while the smallest toxic dose is stated at two grains.

2. Arsenic in medicinal doses does not produce any slow poisoning, but has been administered for months or years in quantities, a small portion of whose aggregate amount would destroy life at once. Hebra has administered a total of more than half-an-ounce to a single patient. The accounts of the toxiphagi of Styria are true, and arsenic is eaten by some for many years without apparent ill effect.

3. Arsenic given by a careful practitioner in doses to be effective, need never produce any symptoms which should cause regret.

4. Arsenic is eliminated very rapidly, chiefly by the bowels and kidneys, so that the urine shows evidences of it in a few hours; no trace of it can be found on careful analysis of the body after death two weeks after the last dose of arsenic.

5. Arsenic, therefore, does not accumulate in the system, and no fear of this need be entertained; but when it is administered in increasing doses, absorption may be hindered, and when the doses become very large, active absorption of the large dose may give rise to a suspicion of cumulative action.

6. The first symptom of a full dose of arsenic in a very large share of cases is a fulness about the face and eyes, and conjunctival irritation and tenderness. This need not be exceeded, but may often be kept up with advantage to a slight degree, till the disease yields. Before any harm is done by the arsenic, either this or a slight nausea or diarrhoea manifests itself.

7. Arsenic should always be given with, or just after, meals; it is often best to give it alone, or with a small amount of bitter infusion.

8. The bowels should first be well purged, and an occasional laxative will both assist the action of the drug, and prevent or modify some of its unpleasant effects.

9. If the urine becomes loaded, and the tongue coated, it is best to stay the medicine for a short time, and give diuretics; some of these disturbances can be prevented by combining an alkali, as acetate of potash, carbonate of soda, or aromatic spirits of ammonia, with the arsenic.

10. The most serviceable forms in which to use arsenic named in the order of their value are—solution of the chloride of arsenic, solution of the arseniate of potash, that of the arseniate of soda, and the arseniate of ammonia, arsenious acid, iodide of arsenic, and the arseniates of iron and quinine; and, of as yet untried efficacy, solution of the chloro-phosphide of arsenic, and arseniate of antimony.

11. The dose of arsenic, small at first, is to be increased slowly until some of its physiological effects are manifested, or the disease yields; it may be then somewhat diminished.

12. It is very important that arsenic be taken very regularly and persistently, and always under the supervision and inspection of the physician.

13. Arsenic is valuable in chronic rheumatism, hence is useful in arthritic eruptions; it is serviceable in certain neuroses, as chorea and neuralgia, therefore in skin diseases, with neurotic elements; and it possesses anti-malarial properties, and is consequently serviceable in diseases of the skin showing periodic symptoms, as intermittent urticaria, etc.; likewise in patients with other skin diseases who have been exposed to miasmatic influences.

14. Arsenic is certainly valuable in psoriasis, eczema, pemphigus, acne, and lichen, in proper cases, and when due regard is paid to the secretory organs and to diet and other elements of general health; of less certain value in lupus, ichthyosis, sycosis, verruca, and epitheliomatous and cancerous diseases; it is absolutely useless or harmful in syphilodermata, the animal and vegetable parasitic diseases (except in rare cases), in elephantiasis Græcorum and Arabum, in purpura, prurigo, herpes zoster, scleroderma, molluscum, contagiosum, and fibrosum, cheloid, vitiligo, nævus, etc.

15. The only local application of arsenic which is justifiable, is either one where the strength is so weak, and the extent of its use so small, that there is no danger from absorption, which may occur when not expected, or one of such a strength as to kill the adjoining tissue at once, and so prevent absorption, as is the case with Marsden's mucilage.—*New York Med. Journal*, August 1876.

BROMIDE OF ARSENIC IN THE TREATMENT OF DISEASES OF THE NERVOUS SYSTEM.—Dr Th. Clemens states that he has obtained astonishing results with bromide of arsenic in the treatment of diseases of the nervous system, and especially of epilepsy. The following is the formula which he recommends, and which he thinks should replace Fowler's solution:—*R.* Pulv. arsenic, alb., potass. carb. e. tartar., āā ʒi.; coque cum aquâ destil. lb. ss. ad solut. perfect.; adde aq. evaporat. restitutâ, aquæ destil. ʒxij., dein adde brom. pur. ʒij., refrigerat. stet per sufficient. temp. ad decol., s. liq., arsenic bromat. Of this he gives one or two drops in a glass of water once, or, if necessary, twice daily. This dosage may be continued for months or even years, without producing any unpleasant effects. In only two cases of epilepsy did he effect a complete cure, but in all the cases marked relief was obtained. In connexion with the bromide of arsenic an almost exclusively meat diet is advised. The patients should be as much as possible in the open air. Unlike the bromide of potassium, the arsenical salt does not require to be given in increasing doses, and, instead of interfering with digestion, improves the nutrition and strength.—*Allg. Med. Central-Zeitung*.

EFFECTS OF SULPHATE OF ATROPIA ON THE NERVOUS SYSTEM.—In the *Journal of Anatomy and Physiology* for January 1877, is a paper by Professor Sydney Ringer and Mr William Murrell,

detailing the results of their experiments relative to the effects of sulphate of atropia on the nervous system. They conclude that the late occurrence of tetanus in atropia poisoning is not due to paralysis of the motor nerves, but that it is owing to the cord being slowly affected. It appears that whilst the poison very quickly paralyzes, it takes many hours, or even days, before it tetanizes. They also conclude that atropia paralyzes much more through its depressing action on the spinal cord than on the motor nerves, and that it has a direct paralyzing action on the cord, and does not affect it through its depressing action on the circulation. In atropia we have a drug which quickly paralyzes the reflex functions of the cord, but requires a much longer time to diminish the resistive power of the cord; hence paralysis precedes, and may even disappear, some hours before the onset of tetanus.

EFFECTS OF SULPHATE OF ATROPIA ON THE WHITE CORPUSCLES OF THE BLOOD AND ON THE BLOODVESSELS.—Zeller finds that the addition of a little sulphate of atropia to a half per cent. solution of common salt rapidly stops the movements of the white corpuscles of the blood. Irritation of the tongue of the frog with a one-tenth per cent. solution of sulphate of atropia causes dilatation of the small arteries with increased rapidity of blood-current, and the white corpuscles cease to adhere to the sides of the vessels, and no longer migrate. Schiffer suggests that this dilatation may be only that which ordinarily follows any local irritation.—*Virchow's Archiv.* B. lxvi. p. 384.

SURGICAL APPLICATIONS OF BORACIC ACID.—Dr Leonard Cane extols boracic acid as a dressing for wounds; he uses it in the form of a lint, cotton-wool, a concentrated watery solution, and an ointment. The lint is prepared by soaking lint in a saturated boiling solution, and drying; the cotton-wool is similarly prepared. The ointment is made by rubbing down a drachm of the acid with an ounce of simple ointment or benzoated lard.

The following are the advantages claimed by Dr Cane for boracic acid:—

1. It is an antiseptic which does not irritate and inflame, and so allows the natural processes of healing to go on without much interruption.

2. It is exceedingly simple in its application, and can be used apart from all the details required by a thoroughly antiseptic method.

3. It can be used in the shape of the lint, lotion, cotton-wool, etc., in combination with most other methods of treatment.

4. Its cost is trifling; and, though this is of secondary importance, it is a feature of the treatment which will recommend its employment in workhouse infirmaries, and in dispensary and parish practice.—*Lancet*, 20th May 1876.

In the Bellevue Hospital, New York, a scirrhus breast was removed in the usual manner. After the operation the patient

suffered severely from pain in and about the wound, and was greatly relieved by the application of cloths wet with solution of boracic acid. Pieces of muslin were dipped in a saturated solution of the acid, and then dried. Before being applied they were dipped in water.—Quoted in *Lond. Med. Record*, January 1876.

ACTION OF CRESOTIC ACID.—The results of Dr C. F. Buss's experiments leave no doubt that cresotic acid is a most effective antipyretic remedy, corresponding in its action to salicylic acid or quinine. Cresotic or carbo-cresylic acid ($C_8H_8O_3$) is derived from cresol or cresyl-alcohol (C_7H_8O) in the same way that salicylic acid is from phenol or phenyl-alcohol (C_6H_6O), by passing carbonic-acid gas into cresol (or phenol) containing metallic sodium. The cresotic acid crystallizes from its hot watery solution in colourless prisms. It is sparingly soluble in cold water, readily in ether, alcohol, and alkaline solutions. Ferric chloride produces the same violet colour as it does with salicylic acid.

Sodium cresolate, administered in doses of about $1\frac{1}{2}$ to 2 drachms, give rise to a bad taste in the mouth, but to no other disagreeable sensation than occasionally humming in the ears, and, very rarely, deafness after a few hours.—*Pharm. Centralb.*, 1876, No. 273.

Cresotic acid lowers the temperature and the frequency of both pulse and respiration. It produces a sudden fall of temperature in fever, whilst the diminution produced by quinine is slow and gradual. Kolbe has demonstrated the antiseptic properties of cresotic acid.—*Berlin Klin. Wochensch.*, 1876, No. 3.

MEDICINAL USES OF SULPHUROUS ACID.—In the *Medical and Surgical Reporter*, 13th May 1876, Dr J. W. Botkin extols the use of sulphurous acid in the treatment of enteric fever, his attention being first directed to the subject by a paper in Braithwaites' Retrospect by Dr G. Wilks. Dr Botkin claims for the acid that "it acts as a specific upon the fever-poison, arresting the further development of that poison, and, by controlling the arrest long enough, exterminates the fever." Of thirty cases treated with sulphurous acid, he lost but one patient, who was a fragile consumptive girl. He usually gives the acid in lemonade, from three to fifteen drops every four hours, continuing the administration until the tongue is perfectly clean. When the discharges are very troublesome, the pulse high, and the skin hot and dry, he adds opium, veratrum viride, and nitre, according to the age of the patient. In almost all cases where the acid was discontinued too soon, a relapse occurred.

Allusion should be made to the paper of Mr J. Balfour in this Journal for August, in which he advocates for country practice, where the usual appliances for antiseptic surgery are not available, the use of the sulphurous acid wash, as originally recommended by Dr Dewar of Kirkcaldy. In the proportion of one in twelve of water, it at once alleviates pain, minimises suppuration, is easily applied, and facilitates dressing the wound, while it costs almost nothing.

SULPHURIC ACID IN NECROSIS.—In the *Dublin Journal of Medical Science* for March 1877 a paper in the *Boston Medical and Surgical Journal* is quoted in which the history is recorded of a case of necrosis of the alveolar process which was cured by the daily injection of aromatic sulphuric acid, in the proportion of a drachm to the ounce of water, into the substance of the spongy swelling that surrounded the diseased bone. The teeth were very loose, and the case was one that apparently called for operation. Under the above treatment, combined with the use of tonics and an animal diet, the teeth gradually tightened, and in a year the cure was complete.

CARBOLIC ACID AS A LOCAL ANÆSTHETIC.—Bergonzini states that he has succeeded in opening abscesses without pain by means of a solution of two parts of carbolic acid and one of glycerine left in contact with the skin for three or five minutes. He proposes to try its efficacy in superficial neuralgias.—*Riv. Clin. de Bologna*. Quoted in *Dub. Jl. of Med. Sci.*, April 1876.

CARBOLIC ACID IN THE TREATMENT OF THROAT AFFECTIONS.—Dr James Cuthill states that for more than twelve months he has exclusively treated all cases of diphtheria and of ulceration of the tonsils and fauces by means of the carbolic-acid spray, except that, in the more severe cases, solid nitrate of silver was also employed. He had but one death in about thirty cases. In relaxation of the uvula and other non-ulcerative conditions, and in scarlatinal sore-throat, several excellent results were obtained by this treatment. The strength of the solution used is from one in forty to one in twenty, according to age of patient and severity of the symptoms.—*Brit. Med. Jl.*, 29th April 1876.

LOCAL APPLICATION BY SPRAY OF CARBOLIC ACID AND CREOSOTE IN CHRONIC BRONCHITIS, ETC.—In cases of long-standing chronic bronchitis with profuse yellow purulent expectoration, Mr Anderson Finlay has never known the local application of carbolic-acid, creosote, or tar fail to diminish expectoration and allay the cough. A few applications of carbolic-acid in the form of a spray will invariably remove the foetid odour from the expectoration. In this particular, carbolic-acid is superior to creosote; but the latter exerts a more astringent effect on the mucous membrane. He prefers Siegle's inhaler for the administration of the spray. He generally commences with a weak solution of creosote—two minims to the ounce of water—and gradually increases it to twice that strength. Whether the benefit derived is partly due to absorption of the drug by the mucous membrane, Mr Finlay will not say; but as he has never seen any change in the colour of the urine, or any other constitutional symptom whatever, even after its use for some weeks, he is inclined to attribute its value entirely to its local application.—*Practitioner*, March 1877.

Dr Moritz states that he has found great benefit from the use of

carbolic-acid spray in the treatment of catarrhal diseases of the respiratory organs. He uses a spray of a two per cent. solution of the acid. He explains the action of the acid by supposing that cases of catarrh are in many instances of an infectious, probably parasitic nature.

Dr Masing has obtained good results in the treatment of obstinate cases of whooping-cough by the carbolicized spray.—*St Petersburg Med. Wochenschrift*, 11th Nov. 1876.

SUBCUTANEOUS INJECTION OF CARBOLIC ACID IN CONSUMPTION.—Dr Schnitzler has injected carbolic acid subcutaneously in over 100 cases of consumption. He administered one or two centigrammes of the acid once, or sometimes twice, daily. The result in the majority of the cases was a reduction of the fever. Sometimes the injections appeared to palliate the cough and expectoration. Dr Schnitzler considers that carbolic-acid injections are as effective against hectic as quinine, if not more so. He has never met with an untoward result from the subcutaneous administration of carbolic acid.—*Weiner Med. Presse*, Nos. 32 and 35, 1876.

TREATMENT OF ACUTE RHEUMATISM BY PACKING WITH CARBOLIC ACID.—Several cases of acute rheumatism are recorded as having been treated satisfactorily at St Francis Hospital by means of packing with blankets wrung out of a very dilute solution of carbolic acid. The treatment is a modification of the method practised at the Mount Sinai Hospital. It consists in adding an ounce of carbolic acid to a pailful of warm water, and saturating blankets with the solution before applying them. Marked relief follows the application.—*New York Medical Journal*. Quoted in *Lond. Med. Record*, April 1876.

INJECTION OF CARBOLIC ACID IN THE TREATMENT OF ACUTE RHEUMATISM.—Senator has obtained marked success in the treatment of acute articular rheumatism by subcutaneous injections of carbolic acid, as suggested by Kunze. He employs a one or two per cent. solution, and has never had the slightest accident with it. He is of opinion that it acts by developing a local anæsthesia of the region submitted to its influence.—*Berl. Klin. Wochenschrift*. Quoted in *Dublin Jl. of Med. Sci.*, April 1876.

INJECTION OF CARBOLIC ACID IN NEURALGIA.—Dr Merton of Neuwedell reports four cases of severe neuralgia which were rapidly cured by one or two hypodermic injections of a two per cent. solution of carbolic acid.—*Allgem. Med. Cent. Zeit.*, 6th Sept. 1876.



